

Subpart C—Design Requirements

§ 195.100 Scope.

This subpart prescribes minimum design requirements for new pipeline systems constructed with steel pipe and for relocating, replacing, or otherwise changing existing systems constructed with steel pipe. However, it does not apply to the movement of line pipe covered by § 195.424.

§ 195.101 Qualifying metallic components other than pipe.

Notwithstanding any requirement of the subpart which incorporates by reference an edition of a document listed in § 195.3, a metallic component other than pipe manufactured in accordance with any other edition of that document is qualified for use if—

(a) It can be shown through visual inspection of the cleaned component that no defect exists which might impair the strength or tightness of the component; and

(b) The edition of the document under which the component was manufactured has equal or more stringent requirements for the following as an edition of that document currently or previously listed in § 195.3:

- (1) Pressure testing;
- (2) Materials; and
- (3) Pressure and temperature ratings.

[Amdt. 195–28, 48 FR 30639, July 5, 1983]

§ 195.102 Design temperature.

(a) Material for components of the system must be chosen for the temperature environment in which the components will be used so that the pipeline will maintain its structural integrity.

(b) Components of carbon dioxide pipelines that are subject to low temperatures during normal operation because of rapid pressure reduction or during the initial fill of the line must be made of materials that are suitable for those low temperatures.

[Admt. 195–45, 56 FR 26925, June 12, 1991]

§ 195.104 Variations in pressure.

If, within a pipeline system, two or more components are to be connected at a place where one will operate at a higher pressure than another, the sys-

tem must be designed so that any component operating at the lower pressure will not be overstressed.

§ 195.106 Internal design pressure.

(a) Internal design pressure for the pipe in a pipeline is determined in accordance with the following formula:

$$P=(2 St/D) \times E \times F$$

P=Internal design pressure in pounds per square inch gauge.

S=Yield strength in pounds per square inch determined in accordance with paragraph (b) of this section.

t=Nominal wall thickness of the pipe in inches. If this is unknown, it is determined in accordance with paragraph (c) of this section.

D=Nominal outside diameter of the pipe in inches.

E=Seam joint factor determined in accordance with paragraph (e) of this section.

F=A design factor of 0.72, except that a design factor of 0.60 is used for pipe, including risers, on a platform located offshore or on a platform in inland navigable waters, and 0.54 is used for pipe that has been subjected to cold expansion to meet the specified minimum yield strength and is subsequently heated, other than by welding or stress relieving as a part of welding, to a temperature higher than 900° F (482° C) for any period of time or over 600° F (316° C) for more than 1 hour.

(b) The yield strength to be used in determining the internal design pressure under paragraph (a) of this section is the specified minimum yield strength. If the specified minimum yield strength is not known, the yield strength to be used in the design formula is one of the following:

(1)(i) The yield strength determined by performing all of the tensile tests of API Specification 5L on randomly selected specimens with the following number of tests:

Pipe size	No. of tests
Less than 168.3 mm (6½ in) nominal outside diameter.	One test for each 200 lengths.